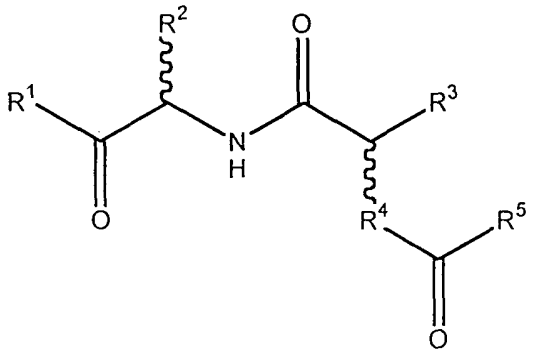
ABSTRACT

The present invention provides methods for the asymmetric synthesis of (S,S,R)-(-)-actinonin and its analogs and the compounds thereby synthesized having a structural formula:



where R^1 is an optionally substituted or halogenated alkyl, aryl, heteroalkyl or heteroaryl amine, said R^1 further comprising a cyclic or bicyclic structure; R^2 is methyl, CH_2CH_3, $(CH_2)_2CH_3$, $C(CH_3)_3$, phenyl, 3,4-dichlorophenyl, biphenyl, benzyl, 4-hydroxybenzyl, piperidine, N-Boc-4-piperidine, CH_2-(N-Boc-4-piperidine), 4-tetrahydropyran, CH_2-4-tetrahydropyran, 3-methyl indolyl, 2-naphthyl, 3-pyridyl, 4-pyridyl, 3-thienyl; R^3 is R^2 or C_{3-8}alkyl, R^4 is C_{1-3}alkyl; and R^5 is NH_2, OH, NHOH, $NHOCH_3$, $N(CH_3)OH$, $N(CH_3)OCH_3$, $NHCH_2CH_3$, $NH(CH_2CH_3)$, $NHCH_2(2,4\text{-}(OCH3)_2Ph$, $NHCH_2(4\text{-}NO_2)Ph$, $NHN(CH_3)_2$, proline, or 2-hydroxymethyl

pyrrolidine. Additionally, a method for the treatment of a neoplastic disease or for the inhibition of tumor cell growth each comprising the step of administering to an individual in need of such treatment a pharmacologically effective dose of the compounds of the present invention are provided.